

Appendix Table 6. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2001.

2001 Swine Manure Nutrient Utilization Project - CORN Field Sites

Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips

Field sites listed alphabetically by county name.

LSNT values offer a soil sample-based estimate of plant-available soil $\text{NO}_3\text{-N}$ in the top foot of soil when corn is 6 to 12 inches tall.

SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.

CERRO GORDO County**(Clear Lake, IA) "CORN after SB" field site** **FIRST- year manure test** **Soil types: Clarion, Nicollet, Webster**

Desired Application Rates	Pre-Sample Based Manure	Estimated Total Nutrients Applied in Manure			Strip Average		
	Application Rate	N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	121	8	53
60 lb Total P ₂ O ₅ /acre (Low)	1,700	92	58	66	155	16	58
100 lb Total P ₂ O ₅ /acre (High)	2,850	154	97	111	161	19	61

Nutrient analysis of manure pre-sample (lb/1000 gallons):

50 lb Total N - 35 lb Total P₂O₅ - 38 lb Total K₂O

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

54 lb Total N - 34 lb Total P₂O₅ - 39 lb Total K₂O

Manure injected April 29, 2001.

Strip point initial soil test values - Bray-1 P: 8 - 42 ppm; K: 135 - 358 ppm

100-day corn hybrid planted May 1, 2001 (30-inch rows).

CERRO GORDO County**(Clear Lake, IA) "CONTINUOUS CORN" field site** **FIRST- year manure test** **Soil types: Webster, Harps, Clarion**

Desired Application Rates	Pre-Sample Based Manure	Estimated Total Nutrients Applied in Manure			Strip Average		
	Application Rate	N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	-- ^a	13	57
60 lb Total P ₂ O ₅ /acre (Low)	1,700	94	60	66	--	23	59
192 lb Total N/acre (High)	3,840	211	134	150	--	24	59

Nutrient analysis of manure pre-sample (lb/1000 gallons):

50 lb Total N - 35 lb Total P₂O₅ - 38 lb Total K₂O

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

55 lb Total N - 35 lb Total P₂O₅ - 39 lb Total K₂O

Manure injected April 29, 2001.

Strip point initial soil test values - Bray-1 P: 7 - 60 ppm; K: 119 - 278 ppm

Corn planted May 15, 2001 (30-inch rows).

^a Strip yield data was lost due to yield monitor malfunction.**CLAY County****(Rossie, IA) "CORN after SB" field site** **FIRST- year manure test** **Soil type: Marcus**

Desired Application Rates	Pre-Sample Based Manure	Estimated Total Nutrients Applied in Manure			Strip Average		
	Application Rate	N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	106	9	47
75 lb Total N/acre (Low)	1,200	71	35	38	131	15	51
150 lb Total N/acre (High)	2,400	142	70	77	145	21	54

Nutrient analysis of manure pre-sample (lb/1000 gallons):

60 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

59 lb Total N - 29 lb Total P₂O₅ - 32 lb Total K₂O

Manure was surface-broadcast and field cultivator-incorporated May 15, 2001.

Strip point initial soil test values - Bray-1 P: 3 - 13 ppm; K: 141 - 221 ppm

104-day corn hybrid planted May 15, 2001 (30-inch rows).

Appendix Table 6 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2001.

2001 Swine Manure Nutrient Utilization Project - CORN Field Sites

Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips

Field sites listed alphabetically by county name.

LSNT values offer a soil sample-based estimate of plant-available soil $\text{NO}_3\text{-N}$ in the top foot of soil when corn is 6 to 12 inches tall.

SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.

FLOYD County

(Nashua, IA) "CORN after SB" field site

FIRST- year manure test

Soil type: Readlyn

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	151	--	--
60 lb Total P ₂ O ₅ /acre (Low)	2,200	103	55	81	163	--	--
120 lb Total P ₂ O ₅ /acre (High)	4,400	207	110	163	166	--	--

Nutrient analysis of manure pre-sample (lb/1000 gallons):

28 lb Total P₂O₅

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

47 lb Total N - 25 lb Total P₂O₅ - 37 lb Total K₂O

Manure injected April 27, 2001.

Strip point initial soil test values - Bray-1 P: 9 -35 ppm; K: 74 - 144 ppm

Corn planted May 14, 2001 (30-inch rows).

HARDIN County

(Iowa Falls, IA) "CONTINUOUS CORN" field site

FIRST- year manure test

Soil types: Webster & Nicollet

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	131	7	51
60 lb Total P ₂ O ₅ /acre (Low)	1,442	69	55	45	144	12	54
190 lb Total N/acre (High)	3,943	189	150	122	147	20	58

Nutrient analysis of manure pre-sample (lb/1000 gallons):

48.2 lb Total N - 41.6 lb Total P₂O₅ - 35 lb Total K₂O

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

48 lb Total N - 38 lb Total P₂O₅ - 31 lb Total K₂O

Manure injected April 26, 2001.

Strip point initial soil test values - Bray-1 P: 1 - 57 ppm; K: 77 - 194 ppm

Corn planted May 14, 2001 (30-inch rows).

HARDIN County

(Iowa Falls, IA) "CORN after SB" field site

FIRST- year manure test

Soil types: Webster & Nicollet

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	122	--	--
100 lb Total P ₂ O ₅ /acre (Low)	2,404	115	91	75	141	--	--
193 lb Total N/acre (High)	4,004	192	152	124	146	--	--

Nutrient analysis of manure pre-sample (lb/1000 gallons):

48.2 lb Total N - 41.6 lb Total P₂O₅ - 35 lb Total K₂O

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

48 lb Total N - 38 lb Total P₂O₅ - 31 lb Total K₂O

Manure injected April 26, 2001.

Strip point initial soil test values - Bray-1 P: 1 - 65 ppm; K: 60 - 288 ppm

Corn planted May 14, 2001 (30-inch rows).

Appendix Table 6 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2001.

2001 Swine Manure Nutrient Utilization Project - CORN Field Sites

Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips

Field sites listed alphabetically by county name.

LSNT values offer a soil sample-based estimate of plant-available soil $\text{NO}_3\text{-N}$ in the top foot of soil when corn is 6 to 12 inches tall.

SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.

STORY County**(Story City, IA) "CORN after SB" field site** **FIRST- year manure test** **Soil types: Clarion, Nicollet, Webster**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	148	15	58
75 lb Total N/acre (Low)	2,080	85	73	48	168	12	62
150 lb Total N/acre (High)	4,160	171	146	96	170	20	63

Nutrient analysis of manure pre-sample (lb/1000 gallons):

36 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

41 lb Total N - 35 lb Total P₂O₅ - 23 lb Total K₂O

Manure injected November 10, 2000.

Strip point initial soil test values - Bray-1 P: 5 - 31 ppm; K: 75 - 161 ppm

Corn planted May 10, 2001 (30-inch rows).

WASHINGTON County**(West Chester, IA) "CORN after SB" field site** **FIRST- year manure test** **Soil types: Kalona & Taintor**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	89	3	45
75 lb Total N/acre (Low)	3,100 (1:1 dil.)	105	74	62	153	8	56
150 lb Total N/acre (High)	3,100	189	140	112	169	11	59

Nutrient analysis of manure pre-sample (lb/1000 gallons):

49 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

Diluted liq. manure 1:1 with water for low rate.

Low (1:1):

34 lb Total N - 24 lb Total P₂O₅ - 20 lb Total K₂O

High:

61 lb Total N - 45 lb Total P₂O₅ - 36 lb Total K₂O

Manure injected November 10, 2000.

Strip point initial soil test values - Bray-1 P: 7 - 106 ppm; K: 175 - 273 ppm

Corn planted May 2, 2001 (30-inch rows).

WRIGHT County**(Dows, IA) "CORN after SB" field site** **FIRST- year manure test** **Soil types: Talcot, Wadena, & Cylinder**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	119	6	47
75 lb Total N/acre (Low)	1,850	91	65	61	145	10	54
150 lb Total N/acre (High)	3,700	181	130	122	157	16	58

Nutrient analysis of manure pre-sample (lb/1000 gallons):

41 lb Total N - 25 lb Total P₂O₅ - 34 lb Total K₂O

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

49 lb Total N - 35 lb Total P₂O₅ - 33 lb Total K₂O

Manure was injected April 29, 2001.

Strip point initial soil test values - Bray-1 P: 1 - 73 ppm; K: 114 - 508 ppm

Corn planted May 8, 2001 (36-inch rows).

Appendix Table 6 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2001.

2001 Swine Manure Nutrient Utilization Project - CORN Field Sites**Summary of Preliminary "Yield & Related Measures" Data from Replicated Manure Strips**

Field sites listed alphabetically by county name.

LSNT values offer a soil sample-based estimate of plant-available soil $\text{NO}_3\text{-N}$ in the top foot of soil when corn is 6 to 12 inches tall.

SPAD chlorophyll meter readings measure relative "ear leaf" greenness near R1 corn growth stage. Larger values = greener leaves.

CLAY County**(Spencer, IA) "CORN after SB" field site****RESIDUAL year manure test****Soil type: Marcus**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	84	6	43
100 lb Total N/acre (Low)	1,700	114	73	54	103	7	47
200 lb Total N/acre (High)	3,400	228	146	109	116	7	50

Nutrient analysis of manure pre-sample (lb/1000 gallons):

58 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

67 lb Total N - 43 lb Total P₂O₅ - 32 lb Total K₂O

Manure surface-broadcast April 26, 2000 and field cultivator-inc. next day (before 2000 soybean crop).

Strip point initial soil test values - Bray-1 P: 19 - 42 ppm; K: 178 - 215 ppm

Corn planted May 15, 2001 (30-inch rows).

WEBSTER County**(Fort Dodge, IA) "CORN after SB" field site****RESIDUAL year manure test****Soil type: Webster & Nicollet**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average		
		N	P ₂ O ₅	K ₂ O	Corn Yield	LSNT	R1 SPAD
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)	(ppm)	
0 lb Total N/acre (Check)	No manure	0	0	0	-- ^b	8	57
100 lb Total N/acre (Low)	1,600	91	58	59	--	8	58
200 lb Total N/acre (High)	3,200	182	115	118	--	15	60

Nutrient analysis of manure pre-sample (lb/1000 gallons):

64 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

71 lb Total N - 54 lb Total P₂O₅ - 39 lb Total K₂O

Manure injected April 24, 2000 (before 2000 soybean crop).

Strip point initial soil test values - Bray-1 P: 18 - 58 ppm; K: 150 - 232 ppm

Corn planted May 16, 2001 (30-inch rows).

^b Strip yield data lost due to yield monitor malfunction.

Appendix Table 6 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2001.

2001 Swine Manure Nutrient Utilization Project - SOYBEAN Field Sites

Summary of Preliminary Weigh Wagon/Yield Monitor Yield Data and Related Measures from Replicated Manure Strips
Field sites listed alphabetically by county name.

CLAY County

(Rossie, IA) "SB after CORN" field site		FIRST- year manure test			Soil type: Marcus
Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average Soybean Yield
	Application Rate	N	P₂O₅	K₂O	
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)
0 lb Total N/ac (Check)	No manure	0	0	0	47
100 lb Total N/ac (Low)	1,700	100	53	54	51
200 lb Total N/ac (High)	3,400	201	105	109	51

Nutrient analysis of manure pre-sample (lb/1000 gallons):

60 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

59 lb Total N - 31 lb Total P₂O₅ - 32 lb Total K₂O

Manure surface-broadcast and field cultivator-incorporated May 15, 2001.

Strip point initial soil test values - Bray-1 P: 5 - 17 ppm; K: 148 - 213 ppm

Soybeans planted May 16, 2001 (30-inch rows).

WASHINGTON County

(West Chester, IA) "SB after CORN" field site		FIRST- year manure test			Soil types: Nira & Mahaska
Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average Soybean Yield
	Application Rate	N	P₂O₅	K₂O	
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)
0 lb Total N/ac (Check)	No manure	0	0	0	49
100 lb Total N/ac (Low)	3,800 (1:1 dil.)	114	68	61	51
200 lb Total N/ac (High)	3,800	201	125	114	53

Nutrient analysis of manure pre-sample (lb/1000 gallons):

53 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

Diluted liq. manure 1:1 with water for low rate.

Manure injected April 19, 2001.

Low (1:1):

30 lb Total N - 18 lb Total P₂O₅ - 16 lb Total K₂O

High:

53 lb Total N - 33 lb Total P₂O₅ - 30 lb Total K₂O

Strip point initial soil test values - Bray-1 P: 9 - 28 ppm; K: 156 - 256 ppm

Soybeans planted June 12, 2001 (15-inch rows).

Appendix Table 6 continued. Preliminary strip yield response to liquid swine manure application from each demonstration site, 2001.

2001 Swine Manure Nutrient Utilization Project - SOYBEAN Field Sites

Summary of Preliminary Weigh Wagon/Yield Monitor Yield Data and Related Measures from Replicated Manure Strips
Field sites listed alphabetically by county name.

CLAY County**(Spencer, IA) "SB after CORN" field site****RESIDUAL year manure test Soil type: Marcus**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average Soybean Yield
		N	P ₂ O ₅	K ₂ O	
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)
0 lb Total N/ac (Check)	No manure	0	0	0	57
	"Residual"	---	---	---	58
75 lb Total N/ac (Low)	1,300	77	46	38	57
150 lb Total N/ac (High)	2,600	154	91	77	59

Nutrient analysis of manure pre-sample (lb/1000 gallons):

58 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

64 lb Total N - 38 lb Total P₂O₅ - 32 lb Total K₂O

Manure surface-broadcast April 26, 2000 and field cultivator-inc. next day.

"Residual" strip: 350 lb total N - 255 lb total P₂O₅ - 155 lb total K₂O applied as swine manure prior to 1999 soybean crop.

Strip point initial soil test values - Bray-1 P: 34 - 50 ppm; K: 196 - 259 ppm

Soybeans planted May 15, 2001 (30-inch rows).

WEBSTER County**(Fort Dodge, IA) "SB after CORN" field site****RESIDUAL year manure test Soil types: Webster & Nicollet**

Desired Application Rates	Pre-Sample Based Manure Application Rate	Estimated Total Nutrients Applied in Manure			Strip Average Soybean Yield
		N	P ₂ O ₅	K ₂ O	
	(gallons/acre)	----- (lb/acre) -----			(bu/acre)
0 lb Total N/ac (Check)	No manure	0	0	0	35
75 lb Total N/ac (Low)	1,200	70	48	43	35
150 lb Total N/ac (High)	2,400	139	96	86	38

Nutrient analysis of manure pre-sample (lb/1000 gallons):

64 lb Total N

Nutrient analysis of field-applied manure sample (lb/1000 gallons):

58 lb Total N - 40 lb Total P₂O₅ - 36 lb Total K₂O

Manure injected April 24, 2000.

Strip point initial soil test values - Bray-1 P: 10 - 43 ppm; K: 108 - 172 ppm

Soybeans planted June 7, 2001 (30-inch rows).